Implications of Circular Economy, Supply Chain Management Innovation and Sustainability on Organisational Performance

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***Abstract*-This study analysed the effects of circular economy, supply chain management innovation and sustainability on organisation performance. A total of 163 respondents, who are public sector employees in Bandung City, participated in this study. The hypotheses were tested using the descriptive and verification research methods. Data were collected using a questionnaire, and structural equation modelling analysis through the LISREL programme was employed. Results indicated that circular economy and supply chain management innovation significantly and positively influence organisation performance. Similarly, supply chain management innovation significantly and positively influences sustainability, which also significantly and positively influences organisation performance.**

Keywords; Circular Economy, Supply Chain Management Innovation, Organisational Performance, Sustainability

1. Introduction

Information technology development results in great changes. Keen business competition is also becoming a serious problem for companies because the business environment has undergone a change characterised by increasing environmental uncertainty conditions, thereby complicating planning, control and retrieval activity decisions and affecting company performance. Thus, organisations use different methods and tactics to gain high performance. The intended performance can be seen from the achievement of superior profitability that can be done by considering environmental and economic performance [1-5]. In [6] revealed that firms can gain high profit by performing and encouraging sustainability practices.

United Nations defined sustainability as meeting current needs without compromising future generations' ability to meet their own needs. However, previous research stated that not all organisations can perform sustainability practices. Nevertheless, [7] argued that certain organisations have sufficient resources and capabilities that enable them to achieve sustainability practices.

Despite having broad debates about sustainability and performance, mixed findings have been reported [8-12]. The present study is an attempt to explore the relationship between sustainability and firm performance.

In addition to sustainability, other factors can enhance company performance, including supply chain management innovation and circular economy. In [13] regarded supply chain management innovation as something that is new to firms and is adapted from another context, which may be from peer firms. Supply chain management innovation is referred to as a new management practice that is intended to enhance firm performance. Such an innovation is also reinforced by several previous studies, which stated that supply chain management innovation has a relationship with or influence on firm performance [14-20]. Other researchers have stated that circular economy has a relationship with or influence on firm performance [21-25], even though a widely accepted definition for circular economy does not exist. A clear division between circular economy and similar concepts, such as corporate social responsibility and creating shared value, is also non-existent. Therefore, the present study attempts to discuss these literature gaps.

Based on the abovementioned conditions, the study aims the following:

1. To analyse the effect of circular economy on organisation performance
2. To examine the influence of supply chain management innovation on organisation performance
3. To analyse the effects of circular economy and supply chain management innovation on organisation performance
4. To examine the influence of supply chain management innovation on sustainability
5. To analyse the effect of sustainability on organisation performance
6. To examine the effects of supply chain management innovation and sustainability on organisation performance

2. Review of Related Literature

2.1 Circular Economy

In [269] defined circular economy as an approach that can transform resource function in the economy. Factory wastes can become valuable inputs to another process, and products can be repaired, reused or upgraded instead of thrown away. In [27] stated that circular economy is a sustainable development strategy proposed by the central government of China, aiming to improve the efficiency of materials and energy use. In [28] stated that circular economy is an economic and industrial system based on the reuse of products and raw materials and the restorative capacity of natural resources. Circular economy attempts to minimise value destruction in the overall system and to maximise value creation in each link in the system.

In [29] stated that circular economy is a mode of economic development that aims to protect the environment and prevent pollution, thereby facilitating sustainable economic development. In [30] revealed that circular economy provides multiple value creation mechanisms, which are decoupled from the consumption of finite resources. Circular economy aims to achieve optimum production by simultaneously minimising natural resource utilisation and pollution emission and minimum wastage, by reusing production and minimum pollution wastes and by recycling and restoring technically useless wastes [31].

In [32] stated that circular economy focuses on 'reducing,' 'reusing' and 'recycling' materials and energy. Circular economy also has a close relationship with environmental awareness and behaviour. According to the Ministry of Industry in Indonesia [33], the main principle of circular economy is 'reduce,' 'reuse,' 'recycle,' 'recover' and 'repair.' These five principles can be applied by reducing the use of natural materials (reduce); by optimising the use of materials that can be reused (reuse), including recycled (recycle) and recovered (recovery) materials, or by making improvements (repair).

2.2 Supply chain management innovation

In [34] defined supply chain management innovation as the generation and implementation of management practice, process, structure or technique that is new to the state of the art and is intended to meet organisational goals. In [15] revealed that supply chain management innovation is associated with changes such as how managers set their directions, how they make decisions, how they coordinate activities and how they motivate employees. In [13] suggested that supply chain management innovation enables business firms to adopt various innovative and technological processes that are required for the smooth run of operational activities. IN [8] argued that supply chain management innovation can significantly spur firm performance in dynamic environments. In [12] stated that supply chain management innovation plays a significant role in the improvement of firm productivity and performance. Furthermore, supply chain management innovation is a significant driver of organisation performance [15, 18] and influences financial firm performance [33]

2.2.1 Organisation Sustainability

According to the World Summit United Nations General Assembly, sustainability is the reconciliation of environmental, social and economic demands as the three pillars of sustainability. In [26] stated that sustainability is a set of values, issues and processes that companies must address to minimise any harm resulting from their activities and to create economic, social and environmental values. In [1] revealed that '...sustainability is a process which ensures the development of all aspects of human life. It means resolving the conflict amongst various competing goals and involving the simultaneous pursuit of economic prosperity, environmental quality and social equity famously known as triple bottom line...'

Sustainability is crucial for the betterment of the environment and plays a significant role in organisational performance. Hence, senior managers opt for various innovative activities and environmental strategies to enhance their suitability [17].

2.2.2 Organisation Performance

In [8] revealed that performance is the ability to achieve organisational tasks by effectively and efficiently using resources. The intended resources include human resources, wealth, capabilities, organisational processes, company attributes, information and knowledge controlled by companies. In [10] stated that no definition of organisational performance can be universally accepted. Several thoughts illustrate the concept of organisational performance. 1) Performance is a financial and non-financial tool that provides information on the achievement of objectives and results. 2) Performance is dynamic and requires consideration and interpretation. 3) Performance is illustrated by the use of a quality model that explains how actions can affect future results. 4) Performance is understood differently depending on the people involved in evaluating organisational performance. 5) Work concepts require knowledge on the element characteristics for each area of responsibility. 6) Reporting the organisational performance requires the ability to quantify results.

In [3] suggested that sustainability practices spur firm performance during a difficult time. Two competing theories attempt to explore the influence of sustainability on financial firm performance; one is the value creating theory and the other is the value destroying theory [36]. Value creating theory demonstrates that firm risk is

reduced with the adoption of social and environmental responsibility. Destruction theory indicates that firms engaged in social and environmental responsibilities lose focus on profitability but please shareholders [4]. However, In[6] stated that sustainability is not merely an environmental practice but stimulates deep processes inside organisations that significantly improve financial performance. In [24] suggested that companies face fierce competition. Sustainability in this situation helps improve firm performance. In [7] concluded that sustainability practices significantly improve organisations' financial performance.

3. Research Method

Two research methods are used in this study, namely, descriptive and verification. Descriptive research is performed to analyse data by describing those that are collected without intending to make general conclusions. Data obtained can be analysed and interpreted in accordance with the research objectives on the basis of the variables used in this study. Verification research is conducted to test the hypotheses in accordance with the research purpose.

The unit of analysis in this study is the Public Sector Department, and 163 of its employees in Indonesia comprise the unit of observation. The model used to examine the proposed hypotheses is the causality or relationship or influence model. Structural equation modelling (SEM) from LISREL statistician is used as the analysis technique.

4. Results and Discussion

An assessment of the overall model fit is assessed using the goodness of fit indicators.

Table 1. Overall Fit of the Empirical Model

Number	Indicator	Cut-off	Calculation	Conclusion
1	Chi-square	< 279, 287 df = 242	37.418	Good
2	Probability	≥ 0.05	0.069	Good
3	RMSEA	≤ 0.08	0.067	Good
4	GFI	≥ 0.90	0.918	Good
5	AGFI	≥ 0.90	0.858	Marginal
6	TLI	≥ 0.95	0.982	Good
7	CFI	≥ 0.95	0.975	Good

Almost all the seven indicators are good and suggest that the model has a good fit. The cut-off value of the determination of the fit model is 6. The hypotheses are tested on the basis of the critical ratio value of the causality relationship through SEM. The acceptance of the proposed hypotheses is determined by discussing the SEM results.

The SEM results are analysed by conducting conformity and statistical tests. The data processing results of the empirical model are illustrated in Figure 1.

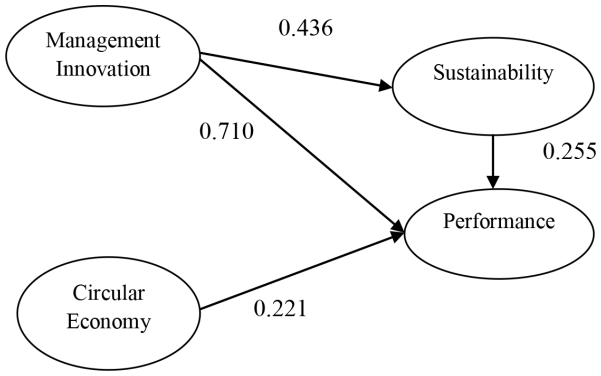

Figure 1. Empirical Model

The SEM results as follows:

Table 1. SEM Results of the Structural Model

Number	Inter-variable Relationship	Coefficient	t-value	Remark
1	Circular Economy → Organisation Performance	0.221	2.064	Accepted
2	Supply chain management innovation → Organisation Performance	0.710	4.540	Accepted
3	Supply chain management innovation → Sustainability	0.436	2.086	Accepted
4	Sustainability → Organisation Performance	0.255	2.454	Accepted

Table 2 presents the influence of circular economy and supply chain management innovation on organisation performance and that of supply chain management innovation and sustainability on organisation performance

Table 2. Estimates of Simultaneous Influence

Variable		R^2	Remark
Economy Supply chain management innovation	Organisation Performance	0.543	Accepted
Supply chain management innovation Sustainability	Organisation Performance	0, 651	Accepted

Hypothesis tests are performed by looking at the significance value of each variable to determine the effect of independent variables on the dependent variable. If the t-value > t-table (Table of Significance 5% = 1.96), then the hypothesis that the independent variables influence the dependent variable can be accepted. Examining Hypotheses 1–4 on the basis of Tables 1 and 2 can be explained as follows:

1. The pathway coefficient of circular economy (X1) to organisational performance (Y) is 0.221 with a t-value of 2.064, which is larger than 1.96, indicating a significant and positive influence of circular economy on organisational performance.

2. The pathway coefficient of supply chain management innovation (X2) to organisational performance (Y) is 0.710 with a t-value of 4.540, which is larger than 1.96, suggesting a significant influence of supply chain management innovation on organisational performance.

3. The pathway coefficient of financial circular economy and supply chain management innovation on organisation performance is 0.543, indicating that circular economy and supply chain management innovation simultaneously influence organisational performance by approximately 54.3%.

4. The pathway coefficient of supply chain management innovation (X2) to sustainability (Z) is 0.436 with a t-value of 2.086, which is larger than 1.96, suggesting a significant influence of supply chain management innovation on financial well-being.

5. The pathway coefficient of sustainability (Z) to organisational performance (Y) is 0.255 with a t-value of 2.454, which is larger than 1.96, indicating a significant and positive influence of supply chain management innovation on organisational performance.

6. The pathway coefficient of supply chain management innovation and sustainability (Z) on organisation performance is 0.651, indicating that supply chain management innovation and sustainability (Z) simultaneously influence organisational performance by approximately 65.1%

5. Discussion

Effect of Circular Economy on Organisational Performance

The t-value of 2.064, which is larger than 1.96, indicates the significant and positive influence of circular economy on organisational performance. This result is consistent with that of previous studies [2, 5, 25, 28].

Influence of Supply chain management innovation on Organisational Performance

The t-value of 4.540, which is also larger than 1.96, suggests the significant effect of supply chain management innovation on organisational performance. This finding supports that of previous studies [14, 15, 18, 27, 30. 33].

Effect of Circular Economy and Supply chain management innovation on Organisational Performance

Circular economy and supply chain management innovation simultaneously influence organisational performance by 54.3% with a t-value of 0.543. Other factors affect organisational performance by 45.7%.

Influence of Supply chain management innovation on Sustainability

The t-value of 4.540, which is larger than 1.96, indicates the significant influence of supply chain management innovation on organisational performance. This result supports previous studies [14, 15, 18, 27, 30, 33].

Effect of Sustainability on Organisational Performance

The t-value of 3.75, which is larger than 1.96, suggests the significant and positive influence of sustainability on organisational performance. This finding is consistent with that of previous research [11, 34].

Effects of Supply chain management innovation and Sustainability on Organisational Performance

Supply chain management innovation and sustainability simultaneously influence organisational performance by 65.1% with a t-value of 0.651. Other factors affect organisational performance by 34.9%.

These findings confirm that organisational performance can be improved by enhancing sustainability on the basis of supply chain management innovation and circular economy. Therefore, supply chain management innovation facilitates organisations to configure their sustainability that can become a significant way to gain high performance. Moreover, managers are strongly recommended to enhance sustainability because doing so can significantly contribute to organisational performance.

6. Conclusion

Organisational performance can be improved by circular economy, supply chain management innovation and sustainability. These three factors are important in ensuring optimal organisational performance. Policymakers and organisations can use the obtained findings to address circular economy and supply chain management innovation for improving sustainability and organisational performance. Future research can utilise the proposed model to examine the correlation amongst organisational performance, supply chain management innovation and circular economy on a broad scale, that is, in other work environments and regions, to strengthen the generalisability of these findings.

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